

ABSTRACT

Methods of identifying a gene whose product modulates a control phenotype of interest are provided. The methods comprise introducing a promoter insertion construct of the present invention into the genomes of a collection of host cells having the control phenotype of interest; selecting mutagenized cells exhibiting a mutant phenotype to provide a pool of mutant cells; treating the mutant cells with the disrupting agent having recombinase activity; detecting changes or the lack thereof in the linkage between the promoter element and downstream host genomic DNA sequences in treated mutant cells, or in both treated and untreated mutant cells; and correlating the changes or lack thereof in the linkage between the promoter element and the downstream host genomic DNA sequences in treated mutant cells, or in both untreated and treated mutant cells, with the phenotypes of said cells. Also provided are compositions that are used in the present methods.